y=
Ax+By=C

Systems Word Problems

1. A recreation center is offering special prices on its pool passes and gym memberships for the summer. On the first day of the offering, a family paid $96 for 4 pool passes and 2 gym memberships. Later that day, an individual bought a pool pass for herself, a pool pass for a friend, and 1 gym membership. She paid $72. x: pool y: gym

   a. Write a system of equations that represents the relationships between pool passes, gym memberships, and the costs. Be sure to state what each variable represents.

   $96 = 4x + 2y$
   $72 = 2x + y$ (2) $\rightarrow$ $144 = 4x + 2y$

   b. Find the price of a pool pass and the price of a gym membership by solving the system algebraically.

   No Solution

2. A large pizza at Palanzio's Pizzeria costs $6.80 plus $0.90 for each topping. The cost of a large cheese pizza at Guido's Pizza is $7.30 plus $0.65 for each topping. How many toppings need to be added to a large cheese pizza from Palanzio's Pizzeria and Guido's Pizza in order for the pizzas to cost the same, not including tax?

   x: Toppings
   y: Total Cost

   $y = 6.8 + 0.9x$ (2, 8.6)
   $y = 7.3 + 0.65x$

   2 toppings

3. The length of a rectangle is equal to triple the width. If the perimeter is 86 centimeters, what are the dimensions of the rectangle?

   $L = 3w$

   L: Length
   W: Width

   $P = L + L + w + w$

   $\begin{cases} 2L + 2w = 86 \\ L = 3w \end{cases}$ $\rightarrow$ $L = 3(10.75)$

   $L = 32.25$

   $2(3w) + 2w = 86$
   $6w + 2w$
   $\frac{8w = 86}{8}$

   $w = 10.75$

Systems Word Problems

1. Monica and Michael both want to buy a scooter. Monica has already saved $25 and plans to save $5 per week. Michael has $16 and plans to save $8 per week. How many weeks will it take them to have saved the same amount and what is that amount?

X: weeks
y: Total $

$y = 5x + 25$
$y = 8x + 16$

2. The sum of two numbers is 48 and their difference is 24. What are the two numbers?

$x + y = 48$
$+ x - y = 24$

$2x = 72$
$x = 36$
$y = 12$

3. The length of Sally's garden is 4 meters greater than 3 times the width. The perimeter of the garden is 72 meters. What are the dimensions?

$L = 3w + 4$
$2L + 2w = 72$

4. Hank has a total of $175 in $5 and $20 bills. The number of $5 bills he has is 3 more than 4 times the number of $20 bills. How many of each type of bill does Hank have?

X : $5
Y : $20

$5x + 20y = 175$
$x = 4y + 3$

5. Leo is 38 years older than Adam. Five times Adam's age, when decreased by 5 is 1 more than Leo's age. How old is each?

L: Leo's Age
A: Adam's Age

$L = A + 38$
$5A - 5 = L + 1$

$5A - 5 = A + 39$